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EXAMINER

PEREZ, JAMES M

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/510,553	<b>Applicant(s)</b> KOSLAR ET AL.	
	<b>Examiner</b> JAMES M. PEREZ	<b>Art Unit</b> 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 10-13 and 15-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Detailed Action***

This action is responsive to the Restriction/Election requirement filed on 10/22/2008.

Currently, claims 1-9 and 14 are elected.

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 2 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention for the following reasons:

- (1) Claim 2, lines 2-3 recites the limitation, "... quantized chirp signals in **the** baseband, in **the** original frequency position or in **the** IF position," wherein there is insufficient antecedent basis for this limitation (as noted in **BOLD** above). The examiner interprets the claim to read, 'quantized chirp signals in baseband, in a original frequency position or in an IF position'.

- (2) Claim 4, lines 2-3 states, "... **the** transmission frequency position." There is insufficient antecedent basis for this limitation (as noted in **BOLD** above). The examiner interprets the claim to read, "... a transmission frequency position."

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raphaeli (USPN 6,064,695) in view of Hooton (US 2003/0133496).

With regards to claim 1, Raphaeli teaches a transmitter (fig. 4: col. 9, lines 53-58 and col. 10, lines 14-28) of a transmission system having a device for producing a chirp signal (fig. 4: col. 9, lines 53-58 and col. 10, lines 14-28), wherein there is provided a memory (RAM, ROM) in which is stored a plurality of different chirp sequences which respectively correspond individually or in pairs to a predetermined chirp signal (fig. 4: element 18: col. 9, lines 53-58 and col. 10, lines 14-28: shift indexes), wherein upon call a desired individual chirp sequence or a pair of chirp sequences is read out of the memory (fig. 4: element 18: col. 9, lines 53-58 and col. 10, lines 14-28) and a predetermined chirp signal is produced by means of the producing device which preferably singly or in pairs has the combination of a digital/analogue converter and a bandpass filtering member (fig. 4: elements 20 and 21: col. 9, lines 53-58 and col. 10, lines 14-28).

Raphaeli does not explicitly teach two Limitations: Limitation 1) a transceiver of a transmission system; and Limitation 2) a low-pass member.

Limitation 1)

Hooton teaches a transceiver of a transmission system having a device for producing a chirp signal (figs. 2 and 3: paragraph 69). One of ordinary skill in the art would clearly recognize the benefits of a transceiver wherein transceivers have the benefits being capable of two way communication with other communication devices,

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thus increasing the throughput of data. Therefore it would be obvious to one of ordinary skill in the art at the time of the invention to combine the chirp transmitter of Raphaeli with the chirp transceiver of Hooton since such a modification has the benefits of two way communication with other communication devices, thus increasing the throughput of data over a channel.

Limitation 2)

One of ordinary skill in the art at the time of the invention would clearly recognize that a low-pass filter has the benefits of decreased filtering complexity and increases the energy of the generated chirp signal. Therefore it would be obvious to one of ordinary skill in the art at the time of the invention replace the known bandpass filter of Raphaeli with a known lowpass member (filter) in order to yield predictable results and benefits such as decreased filtering complexity and increases the energy of the generated chirp signal.

With regards to claim 2, Raphaeli in view of Hooton teaches the limitations of claim 1.

Raphaeli teaches the chirp sequences stored in the memory can be sampled and bit-quantized chirp signals in baseband, in an original frequency position or in an IF position (fig. 4: col. 9, lines 53-58 and col. 10, lines 14-28: note that no up-conversion to form the transmission signal), wherein bit quantization can be freely selected in the range of  $1 \dots n$  (fig. 4: col. 9, lines 53-58 and col. 10, lines 14-28).

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With regards to claim 4, Raphaeli in view of Hooton teaches the limitations of claim 2.

Raphaeli teaches wherein outputted at the output of the producing device is a signal which corresponds to the predetermined chirp signal in the transmission frequency position (fig. 4: col. 9, lines 53-58 and col. 10, lines 14-28: note that no up-conversion to form the transmission signal).

5. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raphaeli (USPN 6,064,695) in view of Hooton (US 2003/0133496) as applied to claim 2 above, further in view of Fouts et al. (USPN 6,624,780).

With regard to claim 3, Raphaeli in view of Hooton teaches the limitations of claim 2.

Raphaeli teaches the chirp signal (which can be any one) can be produced without a corresponding chirp filter (fig. 4: col. 9, lines 53-58 and col. 10, lines 14-28: wherein no filter is contained within producing device).

Raphaeli does not explicitly teach wherein outputted at the output of the producing device are two signals I and Q which correspond to the real part and the imaginary part of the predetermined chirp signal in the baseband.

Fouts teaches outputted at the output of the producing device are two signals I and Q which correspond to the real part and the imaginary part of a determined chirp signal in the baseband (fig. 1: elements 15, 22, 24, and 26: col. 2, lines 5-20 and col. 3, lines 42-50). One of ordinary skill in the art at the time of the invention would clearly recognize the benefits of generating the predetermined chirp signal at baseband

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(including I and Q signals) generating signal at baseband (lower frequency signals) decreases system complexity and increases receiver efficiency. Therefore it would be obvious to one of ordinary skill in the art at the time of the invention to modify the chirp transmitter of Raphaeli in view of Hooton with the teachings of Fouts since such a modification has the benefits of decreasing system complexity and increasing receiver efficiency.

With regards to claim 7, Raphaeli in view of Hooton further in view of Fouts teaches the limitations of claim 3.

Raphaeli in view of Hooton do not explicitly teach wherein the output signals I and Q of the producing device are converted into the transmission frequency band by means of an I/Q modulator.

Fouts teaches wherein the output signals I and Q of the producing device are converted into the transmission frequency band by means of an I/Q modulator (fig. 1: elements 15, 22, 24, and 26: col. 2, lines 5-20 and col. 3, lines 42-50). One of ordinary skill in the art at the time of the invention would clearly recognize the benefits of generating the predetermined chirp signal at baseband (including I and Q signals) since generating signal at baseband (lower frequency signals) decreases system complexity and increases receiver efficiency. Therefore it would be obvious to one of ordinary skill in the art at the time of the invention to modify the chirp transmitter of Raphaeli in view of Hooton with the teachings of Fouts since such a modification has the benefits of decreasing system complexity and increasing receiver efficiency.

6. Claims 5-6 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raphaeli (USPN 6,064,695) in view of Hooton (US 2003/0133496) as applied to claim 2 above, further in view of Racal-MESL Microwave Limited (GB 2116795) (herein referenced as 'Rascal').

With regards to claim 5, Raphaeli in view of Hooton teaches the limitations of claim 2.

Raphaeli in view of Hooton do not explicitly teach wherein outputted at the output of the producing device is a signal which corresponds to the predetermined chirp signal in the intermediate frequency position.

Rascal teaches wherein the output signal of the producing device is converted from the IF position into the transmission band by means of a modulation device (fig. 1: element 5: page 1, lines 103-128 and page 2, lines 28-46). One of ordinary skill in the art at the time of the invention would clearly recognize the benefits of generating the predetermined chirp signal at an Intermediate frequency (IF) since generating signal at IF has lower frequency signal (as compared to the transmission frequency), thus decreasing system complexity. Therefore it would be obvious to one of ordinary skill in the art at the time of the invention to modify the chirp transmitter of Raphaeli in view of Hooton with the teachings of Rascal since such a modification has the benefits of decreasing system complexity.



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With regards to claim 6, Raphaeli in view of Hooton teaches the limitations of claim 2.

Raphaeli in view of Hooton do not explicitly teach wherein, for data transmission convolution pulses, that is to say combination signals comprise upchirp pulses and downchirp pulses, are used, this involving purely real signals so that only one single chirp sequence has to be stored in the memory for the representation thereof in the baseband.

Rascal teaches wherein, for data transmission convolution pulses, that is to say combination signals comprise upchirp pulses and downchirp pulses (page 2, lines 5-10, lines 46-51; and page 2, line 127 through page 3, line 5: frequency sweep), are used, this involving purely real signals so that only one single chirp sequence has to be stored in the memory (page 2, line 127 through page 3, line 5) for the representation thereof in the baseband (fig. 1: element 5: page 1, lines 103-128 and page 2, lines 28-46).

Therefore it would be obvious to one of ordinary skill in the art at the time of the invention to modify the chirp transmitter of Raphaeli in view of Hooton with the teachings of Rascal since such a modification has the benefits of decreasing system complexity.

With regards to claim 8, Raphaeli in view of Hooton further in view of Rascal teaches the limitations of claim 5.

Raphaeli in view of Hooton do not explicitly teach wherein the output signal of the producing device is converted from the IF position into the transmission band by means of a modulation device.

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Rascal teaches wherein the output signal of the producing device is converted from the IF position into the transmission band by means of a modulation device (fig. 1: element 5: page 1, lines 103-128 and page 2, lines 28-46), wherein the generated chirp signal is transmitted using a carrier frequency (page 2, lines 75-90). One of ordinary skill in the art at the time of the invention would clearly recognize the benefits of up converting the chirp signal from IF to transmission frequency (relative to the transmitted carrier) since such modification has the benefits of increasing throughput of a communication system (increased bits per time via transmitted signal). Therefore it would be obvious to one of ordinary skill in the art at the time of the invention to modify the chirp transmitter of Raphaeli in view of Hooton with the teachings of Rascal since such a modification has the benefits of decreasing system complexity and increasing system throughput.

With regards to claim 9, Raphaeli in view of Hooton further in view of Rascal teaches the limitations of claim 6.

Rascal teaches wherein the convolution pulse baseband signal at the output of the producing device is impressed on a real carrier signal by means of a single modulation member (fig. 2: element 16: page 1, lines 103-128 and page 2, lines 28-46). One of ordinary skill in the art at the time of the invention would clearly recognize the benefits of up converting the chirp signal from IF to transmission frequency (relative to the transmitted carrier) in a single stage since such modification has the benefits of increasing throughput of a communication system (increased bits per time via

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transmitted signal) and increasing transmitter efficiency. Therefore it would be obvious to one of ordinary skill in the art at the time of the invention to modify the chirp transmitter of Raphaeli in view of Hooton with the teachings of Rascal since such a modification has the benefits of increasing system throughput and increasing transmitter efficiency.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Raphaeli (USPN 6,064,695) in view of Hooton (US 2003/0133496) as applied to claim 2 above, further in view of Hafeez et al. (US 2002/0150184).

With regards to claim 14, Raphaeli in view of Hooton teaches the limitations of claim 2, including storing sampled chirp signals in memory.

Raphaeli in view of Hooton do not explicitly teach wherein the sampled chirp signals are additionally weighted with selectable filter functions prior to quantization and storage in the memory.

Stierlin teaches that signals weight with raised cosine filters (pulse shaping with selectable roll-off factor  $\alpha$ ) with roll-off before sampling have the benefits of eliminating inter-symbol interference (ISI) (fig. 1: elements 106 and 109: paragraphs 14 and 75). One of ordinary skill in the art at the time of the invention would clearly recognize that removing ISI before sampling increases the accuracy of the sampled signal (lower error). Therefore it would be obvious to one of ordinary skill in the art at the time of the invention to modify the chirp transmitter unit disclosed in Raphaeli in

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view of Hooton with the teachings of Hafeez in order additionally weighted with selectable filter functions prior to quantization and storage in the memory, since such a modification has the benefits of increasing the accuracy of the sampled signal (lower error).

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fling et al. (US 2003/0058961) discloses that a bandpass filter is formed from a lowpass filter and highpass filter connected in series (fig. 15: paragraph 138).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES M. PEREZ whose telephone number is (571)270-3231. The examiner can normally be reached on Monday through Friday: 9am to 5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James M Perez/

Examiner, Art Unit 2611

1/14/2008

/Shuwang Liu/

Supervisory Patent Examiner, Art Unit 2611